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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/533,527

02/17/2006

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EXAMINER

MACKEY, JAMES P

ART UNIT

PAPER NUMBER

1722

MAIL DATE

DELIVERY MODE

05/17/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/533,527

Applicant(s)

IWAMOTO ET AL.

Examiner

James Mackey

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 11-13, 16-23 and 25-28 is/are rejected.
- 7) ☒ Claim(s) 6-10, 14, 15, 24 and 29 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 May 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 5/3/2005.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

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1. Claims 6-10, 14, 15, 24 and 29 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from another multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims have not been further treated on the merits.
2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 11, 16 and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Tuttle et al. (U.S. Patent 6,592,807; Figure 5; col. 3, lines 17-35).

Tuttle et al. teach a piece type tire mold and a method of manufacturing same comprising forming a porous tread mold portion 20 (including tread forming projections as well as the mold surface arranged around the projections) by sintering, the porous sintered mold portion being mated to and joined with a separately manufactured non-porous backing plate during sintering (col. 3, lines 31-35).

4. Claims 1, 16 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by International Publication WO 88/01927 (Figure 1).

WO 88/01927 teaches a piece type tire mold and a method of manufacturing same comprising forming a porous tread mold portion 2, 3 by sintering (page 5, line 28), the porous

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sintered mold portion being mated to and joined with a separately manufactured non-porous mold portion 1 during casting (page 6, lines 6-8).

5. Claims 1, 11-13, 16, 20, 22 and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Kimura et al. (U.S. Patent 3,804,566).

Kimura et al. teach a tire mold and a method of manufacturing same comprising forming porous tread mold portions 41 (arranged around tread forming projections, as clearly shown in Figure 5) by sintering metal powder and infiltrating with metal (col. 3, lines 26-28; col. 4, lines 24-29), the porous sintered and infiltrated mold portion being mated to and joined with a separately manufactured non-porous mold portion 54 during casting (col. 3, lines 47-49).

6. Claims 1, 2, 11 and 16-18 are rejected under 35 U.S.C. 102(b) as being anticipated by German Patent Document 1,800,081 (Figures 1, 5 and 6).

German '081 teaches a tire mold and a method of manufacturing same comprising forming a porous tread mold portion 8 having a layered density distribution (see Figure 6) by sintering, the porous sintered mold portion clearly being arranged around the tread forming projections, and the porous sintered mold portion being mated to and joined with a separately manufactured non-porous mold portion 6.

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 2-5, 11-13 and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over German Patent Document 1,800,081 (Figures 1, 5 and 6), in view of Caretta et al. (U.S. 2001/0048182).

German '081 discloses the tire mold and method of manufacturing same substantially as claimed, comprising forming a porous tread mold portion 8 having a layered density distribution (see Figure 6) by sintering, the porous sintered mold portion clearly being arranged around the tread forming projections, and the porous sintered mold portion being mated to and joined with a separately manufactured non-porous mold portion 6, except for the sintering being performed by application of a laser beam to provide a layered laminated sintered mold portion. Caretta et al.

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disclose a tire mold and method of manufacturing same comprising forming a porous tread mold portion of laminated layers by sintering with the application of a laser beam. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify German '081 by performing the sintering with the application of a laser beam to provide a layered laminated sintered mold portion, as suggested by Caretta et al., in order to facilitate automation of the sintering operation, in order to improve dimensional accuracy of the mold portion, and in order to increase productivity in the mold manufacturing process. It would have been further obvious to a skilled artisan to modify German '081 by forming the density distribution by either varying the powder size or controlling the laser beam outlet exposure time or intensity, since a skilled artisan would have readily recognized the utility of such to impart a desired density to the sintered body. It would have been further obvious to a skilled artisan to assemble the sintered mold portion with the separately manufactured mold portion by embedding at the time of casting of the separately manufactured mold portion, in order to easily and securely unite the sintered body to the remaining mold body. Moreover, it would have been obvious and well within the level of ordinary skill in the art to provide the tread mold as a piece type tire mold, since such were well known equivalent means for forming the tread in the vulcanized tire.

11. Claims 20-23 and 25-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over German '081 in view of Caretta et al., as applied to claims 2-5, 11-13 and 17-19 above, and further in view of any one of German et al. (U.S. Patent 6,399,018), Rode (U.S. Patent 3,623,630; col. 6, line 12), Umehara et al. (U.S. Patent 3,706,550) and Severinsson (U.S. Patent 4,314,399).

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German '081 does not disclose infiltrating a metal or allow into the pores of the laminated sintered mold body. However, it was well known to infiltrate metal into the pores of a sintered mold body in order to increase the hardness, wear resistance and density of the sintered mold body, as evidenced by any one of German et al., Rode, Umehara et al. and Severinsson. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify German '081 with the features of Caretta et al., as described above, and further by infiltrating metal into the pores of the sintered mold body, as suggested by any one of German et al., Rode, Umehara et al. and Severinsson, in order to increase the hardness, wear resistance and density of the sintered mold body. It would have been further obvious to utilize any conventional mold materials for the sinterable powder as well as the infiltrating metal, in order to provide a durable, easily manufactured, high strength, and low cost mold with desirable material characteristics. Note that Caretta et al. disclose that the sipe blade 16 is formed of sintered material; moreover, it is conventional in the tire mold art to provide a mold groove for securing of a separate sipe blade, and it would have been obvious to a skilled artisan to provide such a sipe blade groove in order to facilitate conventional insertion and replacement of a sipe blade in the tire mold.

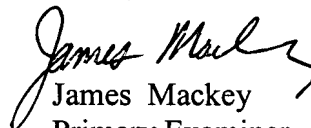
12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Mackey whose telephone number is 571-272-1135. The examiner can normally be reached on M-F, 8:30-5:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Yogendra Gupta can be reached on 571-272-1316. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



James Mackey
Primary Examiner
Art Unit 1722

5/14/07

May 14, 2007
jpm